

**Amendments to the Abstract:**

Please replace paragraph with the following:

A method for implementing distribution of link state information in an optical network includes: determining information of each link protection attribute section included in a Traffic Engineering (TE) link; carrying the information of each link protection attribute section in a customized TLV, respectively; distributing the TLV in the optical network via Traffic Engineering Link State Advertisement (TE LSA). With this invention, all the link state information such as multiple kinds of protection types included in one TE link can be carried in the customized TLV to distribute. Therefore, in the implementation of this invention, one TE link corresponding to one optical fiber can be configured with multiple kinds of protection types. A method for realizing link state information diffusion in optical network. The method primarily comprises: first, determines each link protection attribute segment information contained in the traffic engineering TE link, and carries the respective link protection attribute segment information contained in the link into the self defining TLV; and then, distributes the TLV by means of traffic engineering link state announcement (TE LSA) in the optical network. The invention can diffuse the various kinds of link state information contained in one TE link by totally carrying them in the self defining TLV. Therefore, the realization of the invention could support configuring various protection types for one TE link corresponding to one optical fiber. As a result, obviously reduces the link state information required to diffuse in optical network (namely the quantity of TE LSA), accordingly greatly decreases the flooding data quantity in the network, and improves the network performance.